

12TH ANNUAL SIOP LEADING EDGE CONSORTIUM



# TALENT ANALYTICS:

**DATA SCIENCE**  
to Drive People Decisions  
and **Business Impact**

October 21-22, 2016  
InterContinental Buckhead Atlanta

Presented  
by



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## Planning Committee

Alexis Fink, Intel Corporation, Chair  
Rick Guzzo, Mercer  
Hailey Herleman, IBM

Fred Oswald, Rice University, Science Advisor  
Evan Sinar, Development Dimensions International (DDI)  
Scott Tonidandel, Davidson College



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## *From the Consortium Chair*



I am excited to welcome you to the 12th Annual SIOP Leading Edge Consortium in beautiful Atlanta, Georgia! This year's event is our biggest ever, and we are excited to share two days of learning and insight with you.

This year, we will share expert advice and case examples from thought leaders in academics and business. Our exciting and diverse program will delve into different methodologies, different business problems, and different industries.

This event would not be possible without the support and dedication of the SIOP Administrative Office, and the Leading Edge Consortium planning committee: Rick Guzzo, Hailey Herleman, Fred Oswald, Evan Sinar, and Scott Tonidandel. We are fortunate for the support of a terrific group of sponsors for our event as well.

We have worked hard to create a Leading Edge Consortium that will be energizing and informative. The true test of our success will be whether you are able to take the information shared and relationships forged here and apply them in your own organizations!



Alexis A. Fink  
Leading Edge Consortium Chair

**To access the 2016 LEC presentations, visit [my.siop.org/lec/Resources/](http://my.siop.org/lec/Resources/)**

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## Thursday, October 20

4:00 – 9:00 PM

Registration: Windsor Pre-Function

7:30 – 9:00 PM

Welcome Reception, presented by  
Hope Room

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## Friday, October 21

7:00 AM – 5:30 PM

Registration/Help Desk: Windsor Pre-Function

7:00 – 8:00 AM

Buffet Breakfast presented by  
Windsor AB

**TALENT**  
Quarterly

8:00 – 8:20 AM

Welcome and Introduction: Alexis Fink, LEC Chair  
Windsor CDE

8:20 – 9:20 AM



Morning Session: Keynote

Alan Wild, IBM: “Managing Employee Engagement in a Social World”

Standard measures of employee engagement typically rely on periodic work-force surveys using structured questionnaires. Today, we can measure employee engagement on a continuous basis using unstructured data in the form of social media commentary. This means we can receive real time insights into what drives and what damages employee engagement and take immediate action. That said, employee use of social media can come at a cost as employees begin to use public social networks as alternatives to long standing internal grievance procedures.

9:20 – 9:25 AM

Section Intro: Academic Grounding - Alexis Fink, Intel

9:25 – 9:55 AM

Eden King, George Mason University

“Contextualizing the Conversation: Three Big Questions About Data”

9:55 – 10:25 AM

Coffee Break, presented by  
Windsor Pre-Function



10:25 – 10:55 AM

Elizabeth McCune, Microsoft

“Measuring Culture Change”

10:55 – 11:00 AM

Section Intro: Collection Methods - Hailey Herleman, IBM

11:00 – 11:15 AM

Sherie Apungu, UnitedHealth Group

“Collecting Data Beyond the Human Resource Information System”

11:15 – 11:30 AM

Allen Kamin, GE

“Enhancing Data Availability to Improve Employee Experience and Better Understand Talent”

11:30 AM – 12:00 PM	Jeffrey S. Saltz, Syracuse University “Exploring Data Sources Available for Talent Analytics”
12:00 – 1:00 PM	Lunch – Presentation of Human Resource Management Impact Award 2016 Recipient: Jack in the Box Inc. Venetian Ballroom
1:00 – 1:30 PM	Jackie Ryan and Hailey Herleman, IBM “Big Data Platforms for Workforce Analytics”
1:30 – 1:35 PM	Section Intro: Analysis Methods – Alexis Fink, Intel
1:35 – 2:05 PM	Steve Kozlowski, Michigan State University “Big Data and Computational Organizational Science: A Peek On and Over the Horizon”
2:05 – 2:35 PM	Aman Alexander and Mark Van Buren, CEB “Applying Predictive Analytics to Application Data: Higher Quality for Less Effort”
2:35 – 3:05 PM	Ben Taylor, HireVue “The Super-Human Era: The Latest in HR Data Science Innovation”
3:05 – 3:25 PM	Coffee Break, presented by  Windsor Pre-Function
3:25 – 3:30 PM	Section Intro: Results Methods - Evan Sinar, DDI
3:30 – 4:00 PM	Jennifer Burnett, Cornerstone on Demand “Revealing Compelling Business Insights at Each Level of Talent Analytics Maturity”
4:00 – 4:25 PM	Evan Sinar, DDI “Finding the Face of Big Data: Visualization to Inform and Influence”
4:25 – 4:50 PM	Richard Landers, Old Dominion University “Interdisciplinary Best Practices for Explaining and Demonstrating Insights Drawn From Big Data”
4:50 – 5:20 PM	Paul Tsagaroulis, US General Services Administration “Lessons Learned in Data Visualization: Workforce Dashboards at a Federal Agency”
5:20 – 5:30 PM	Closing
6:00 – 9:00 PM	Friday Night Networking Experience (preregistration required, optional) presented by  City Club of Buckhead (Please meet in hotel lobby at 5:55 PM)



## Saturday, October 22

7:00 AM– 2:30 PM

Registration/Help Desk

7:00 – 8:00 AM

Buffet Breakfast, presented by  
Windsor AB



8:00 – 8:10 AM

Opening Remarks  
Windsor CDE

8:10 – 9:10 AM



Keynote Address: Dan Putka, HumRRO

“Big Data Mythbusters:  
Benefiting From Big Data Analytic Methods With Your Small Data”

Myths surrounding Big Data analytic methods pervade the I-O field. Common myths include the notion such methods are irrelevant for smaller data sets, and produce results that are overly optimistic, lack theoretical value, and are too hard to convey lay decision makers. These myths will be introduced and debunked.

9:10 – 9:40 AM

Sara Roberts, Category 1 Consulting

“From Activity to Action:  
How to Deliver Analytic Insights in An Effective Manner”

9:40 – 10:10 AM

Coffee Break, presented by



10:10 – 10:15 AM

Section Intro: Analytics Teams - Rick Guzzo, Mercer

10:15 – 10:40 AM

Adam Myer, Johnson & Johnson

“Buying and Building Workforce Analytics”

10:40 – 11:05 AM

Alexis Fink, Intel

“From Optimism to Impact: Getting Results With Talent Analytics”

11:05 – 11:25 AM

Olivier Vanker, UnitedHealth Group

“Building the Case and the Talent to Deliver Workforce Analytics”

11:25 – 11:45 AM

Nathan Mondragon, HireVue

“Data Science and I-O: Birds of a Feather or Lone Wolves”

11:45AM – 12:45 PM

Luncheon, presented by  
Windsor AB



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12:45 – 12:50 PM

Section Intro: Risks & Privacy - Rick Guzzo, Mercer; Evan Sinar, DDI

12:50 – 2:20 PM

Panel: “Risks, Privacy, and Ethical Challenges in Big Data Talent Analytics”  
Eric Dunleavy, DCI Consulting; Ed Freeman, University of Virginia;  
Cyrus Mehri, Mehri and Skalet; Rich Tonowski, EEOC

2:20 – 2:30 PM

Closing Remarks

***Thank you for attending the 12th Annual SIOP Leading Edge Consortium!***

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## LEC 2016 Resource Guide

### Talent Analytics: Data Science to Drive People Decisions and Business Impact

**SIOP thanks Remy Jennings and Mary Monroe of Davidson College for their assistance in preparing this list.**

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## Technological Resources for Data Analytics

### General Resources

- Amazon Machine Image: Cloud computing through Amazon Web Services
- Deeplearning4j: Open source distributed deep-learning library written for Java and Scala
- Funf Open Sensing Framework: Open source tools for creating sensing applications for mobile phones
- Hadoop: Distributed storage and processing of large data sets across clusters of commodity servers
- IBM Watson Developer Cloud: Suite of tools including text tone & emotion analyzers, natural language classification, image analysis, etc.
- Kdnuggets.com: Resources, news, software, and tutorials related to business analytics, big data, data mining, and data science
- Microsoft Azure: Cloud computing through Microsoft's cloud platform
- Revolution Analytics: Version of R for big data statistical analysis
- Tableau: Data visualization software focused on business intelligence
- Waikato Environment for Knowledge Analytics (Weka): Free suite of visualization tools and machine learning algorithms for data analysis and predictive modeling

### R packages

#### Social Media

- Rfacebook: Interface for Facebook API
- Rflickr: Interface for Flickr API
- Rlinkedin: Interface for LinkedIn API
- SocialMediaMineR: Data about the number of hits of URLs on social media
- tumblrR: Interface for Tumblr API
- twitterR: Interface for Twitter API

#### Text Mining

- lsa: Latent semantic analysis
- NLP: Basic methods for natural language processing
- RTextTools: Machine learning package for automatic text classification geared toward social scientists
- textir: Multinomial logistic regression for phrase counts
- tm: Comprehensive framework for text mining applications
- zipfR: Word frequency distribution analysis

#### Visualization

- bigvis: Data plots using aggregation and smoothing techniques
- ggplot2: Complex plots using grammar of graphics
- googleVis: Interface for Google Charts API
- tabplot: Visualizations of multivariate datasets
- threejs: 3D scatterplots and globes

#### Parallel Computing

- parallel: Coarse-grained parallelism
- pdbMPI: Single program/multiple data parallel computing
- Rmpi: Interface to MPI
- snowfall: Simple parallel computing
- Data Mining
- arules: Market basket analysis and association rules
- cluster: Basic clustering techniques
- FactoMineR: Multivariate exploratory data analysis
- rattle: Graphical user interface for data mining algorithms
- Machine Learning
- bigrf: Random forest computations in parallel for data sets too large for storage in memory
- e1071: Functions for support vector machines, bagged clustering, and Naïve Bayes clustering
- gbm: Gradient boosting
- glmnet: Lasso and elastic net regularized generalized linear models
- nnet: Neural networks
- randomForest: Classification and regression using random forest algorithms
- rpart: Recursive partitioning and regression trees

## Python Packages

### Social Media

flickrapi: Interface for Flickr API  
python-linkedin: Interface for LinkedIn API  
python-sdk: Interface for Facebook API  
python-twitter: Interface for Twitter API  
pytumblr: Interface for Tumblr API

### Text Mining

NLTK: Natural language processing  
textmining: Statistical text analysis

### Visualization

Bokeh: Visualizations designed for optimal web browser viewing  
Matplotlib: 2D plotting library  
Mayavi: 3D visualization  
pygooglechart: Interface for Google Charts API

## Tutorials

Analyzing Social Media Data in R:

<http://thinktostart.com/category/datascience/r-tutorials/>

Big Data Resources for Python and R:

<https://www.datacamp.com/community/tutorials/learn-datascience-resources-for-python-r#gs.TYnrIYM>

Classification Trees in R and Python:

<https://www.analyticsvidhya.com/blog/2016/04/complete-tutorial-tree-based-modeling-scratch-in-python/#nine>

Cluster analysis in R:

<http://www.stat.berkeley.edu/~s133/Cluster2a.html>

Data Mining in R: Rdatamining.com

FactoMineR Tutorial:

[https://www.youtube.com/playlist?list=PLnZgp6epRBbTsZEFXi\\_p6W48HhNyqwxlu&feature=view\\_all](https://www.youtube.com/playlist?list=PLnZgp6epRBbTsZEFXi_p6W48HhNyqwxlu&feature=view_all)

ggplot2 in R Tutorial:

<http://tutorials.iq.harvard.edu/R/Rgraphics/Rgraphics.html>

Machine Learning in R:

<https://www.datacamp.com/community/tutorials/machine-learning-in-r#gs.kTLLgDA>

### Parallel Computing

dispy: Single instruction/multiple data parallel computing  
Jug: Task-based parallelization  
mpi4py: Interface to MPI  
papyros: Master-slave based parallel processing

### Machine Learning

Orange: Component-based data mining  
scikit: Set of modules for machine learning and data mining

Natural Language Processing using NLTK in Python:

<http://www.nltk.org/book/ch01.html>

Neural Networks in R:

<http://www.di.fc.ul.pt/~jpn/r/neuralnets/neuralnets.html>

O'Reilly Course on Data Visualization using Python:

<http://shop.oreilly.com/product/0636920046592.do?sortBy=bestSellers>

Parallel Computing in R using snowfall:

<http://www.informatik.uni-ulm.de/ni/staff/HKestler/Reisensburg2009/PDF/snowfall-tutorial.pdf>

Support Vector Regression in R:

<http://www.svm-tutorial.com/2014/10/support-vector-regression-r/>

Text Mining in R:

[https://rstudio-pubs-static.s3.amazonaws.com/31867\\_8236987cf0a8444e962ccd2aec46d9c3.html](https://rstudio-pubs-static.s3.amazonaws.com/31867_8236987cf0a8444e962ccd2aec46d9c3.html)

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